

CLAIMS

1. Process of producing gasoline with a low sulphur content from a feedstock containing sulphur, comprising at least the following steps:
- 5 a1) at least one selective hydrogenation of the diolefins and acetylenic compounds contained in the feedstock,
- b) at least one separation of the effluent obtained at the end of step a1 into at least three fractions, a light fraction from which virtually all of the sulphur has been removed and containing the lightest olefins, a heavy fraction in which the greater part of the sulphur compounds initially contained in the initial gasoline is concentrated and at least one
- 10 intermediate fraction having a relatively low content of olefins and aromatics,
- c1) at least one treatment of the heavy gasoline separated at step b on a catalyst enabling the unsaturated sulphur compounds to be at least partially decomposed or hydrogenated,
- d) at least one step to remove the sulphur and nitrogen from at least one intermediate
- 15 fraction, followed by catalytic reforming.
2. Process as claimed in claim 1, additionally comprising at least one step a2 prior to step b with a view to increasing the molecular weight of the light sulphur products present in the feedstock and/or the effluent from step a1.
- 20 3. Process as claimed in one of claims 1 or 2 additionally comprising a step c2 in which the effluent from step c1 is treated on a catalyst enabling the sulphur compounds to be decomposed.
4. Process as claimed in claim 3, in which the catalyst from step c2 additionally allows
- 25 hydrogenation of the olefins to be limited to less than 20% by volume.
5. Process as claimed in any one of claims 1 to 4, additionally comprising a step e of mixing at least two fractions, at least one of which was desulphurized at step c1 and optionally c2 and/or
- 30 step d.

6. Process as claimed in anyone of claims 1 to 5 in which a part of at least one intermediate fraction obtained from step b is mixed with the heavy fraction from step b prior to step c1.
7. Process as claimed in any one of claims 1 to 5 in which a part of at least one intermediate
5 fraction obtained at step b is mixed with the effluent from step c1.
8. Process as claimed in anyone of claims 1 to 7 in which step d during which the sulphur and nitrogen are removed is accompanied by full hydrogenation of the olefins.
- 10 9. Process as claimed in any one of claims 1 to 8 in which the feedstock is a gasoline cut from a catalytic cracking unit.
10. Process as claimed in any one of claims 1 to 9 in which step b comprises separation of the effluent obtained from step a1 into four fractions: a light fraction, a heavy fraction and two
15 intermediate fractions, and in which one of the intermediate fractions is treated at step d and the other is mixed with the heavy fraction separated at step b before being treated at step c1 and/or step c2.

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Aadd
B3
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C3